

Name: _____ Date: _____
Algebra 2/Trig H: Sigma Notation

Do Now

Solve for x : $\left(\frac{1}{4}\right)^x = 8^{1-x}$

***Capital Sigma is also referred to as the **summation symbol**.

Evaluate each sum:

1) $\sum_{m=2}^5 (m^2 - 1)$

2) $\sum_{n=1}^5 (-2n + 100)$

3) $\sum_{b=0}^3 (2 - (b)i)$

4) $2 \sum_{n=0}^2 (n^2 + 2^n)$

5) $8 + 16 \sum_{k=1}^4 \left(\frac{1}{2}\right)^k$

6) Jonathan's teacher required him to express the sum $\frac{2}{3} + \frac{3}{4} + \frac{4}{5} + \frac{5}{6} + \frac{6}{7}$ using sigma notation. Jonathan proposed four possible answers. Which of these four answers is *not* correct?

(1) $\sum_{k=3}^7 \frac{k-1}{k}$

(3) $\sum_{k=1}^5 \frac{k+1}{k+2}$

(2) $\sum_{k=1}^5 \frac{k}{k+1}$

(4) $\sum_{k=2}^6 \frac{k}{k+1}$

7) Use sigma notation to represent the sum: $5 + 10 + 15 + 20 + 25$

8) Use sigma notation to represent the sum: $4 + 8 + 12 + 16 + 20 + 24 + \dots$

9) Use sigma notation to represent the sum: $-1 + 1 - 1 + 1 - 1 + 1 - 1$

10) Use sigma notation to represent the sum: $1 - 1 + 1 - 1 + 1 - 1 + 1$

11) $\sum_{n=1}^5 (-2n + 100)$

12) $\sum_{n=1}^5 (n^2 + n)$

13) $2 \sum_{n=1}^5 (2n - 1)$

$$14) \sum_{p=-2}^1 3(4p-1)$$

15) The expression $1 + \sqrt{2} + \sqrt[3]{3}$ is equivalent to

$$(1) \sum_{n=1}^3 \sqrt{n}$$

$$(3) \sum_{n=1}^3 n^n$$

$$(2) \sum_{n=0}^3 n^n$$

$$(4) \sum_{n=1}^3 n^{\frac{1}{n}}$$